

**TELEMETRY SYSTEM AND METHOD FOR ACOUSTIC ARRAYS**

**Abstract of the Disclosure**

A telemetry system includes a plurality of acoustic sensors for receiving acoustic information and generating analog signals based on the received acoustic information. A first plurality of subsystems is coupled to at least a 5 subset of the plurality of acoustic sensors. The first plurality of subsystems is configured to receive the analog signals from the acoustic sensors and generate digital values based on the received analog signals. The system includes a first optical splitter. A first optical transmitter transmits a first set of optical pulses to the first optical splitter. The first optical splitter is configured to transmit the 10 first set of optical pulses to each subsystem in the first plurality of subsystems. Each subsystem in the first plurality of subsystems is configured to modulate the first set of optical pulses based on the generated digital values and thereby generate a modulated optical pulse stream. A first optical combiner receives and combines the modulated optical pulse stream from each subsystem in the first 15 plurality of subsystems, thereby generating a combined modulated optical pulse stream. A first optical receiver receives the combined modulated optical pulse stream from the first optical combiner. The first optical receiver is configured to generate electrical signals based on the received combined modulated optical pulse stream.